



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/702,218

10/30/2000

Arthur W. Wang

PD-990302

9458

20991

7590

09/22/2006

EXAMINER

LEE, JOHN J

THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
P O BOX 956
EL SEGUNDO, CA 90245-0956

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/702,218	Applicant(s) WANG, ARTHUR W.	
	Examiner JOHN J. LEE	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 46-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 and 50-52 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, 15-22, 24-31 and 45 is/are rejected.
- 7) ☒ Claim(s) 8, 23, 32 and 46-49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's arguments with respect to claims 1-7, 9-11, 15-22, 24-31 and 45 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-6, 9, 15-21, 24-30, and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Torkington et al.(US 6,198,907) in view of Rothblatt (US 6,105,060).

Regarding **claims 1, 16, and 24**, Torkington discloses that a system for providing at least near continuous broadcast service to a terrestrial receiver (Fig. 3, column 2, lines 29 – 50, and abstract). Torkington teaches that a plurality of satellites (Fig. 1, 2), each satellite in an inclined, elliptical, geosynchronous orbit, each satellite providing a portion of time of the at least near continuous broadcast service to the terrestrial receiver (Fig. 1, 3, column 2, lines 40 – column 3, lines 40, and column 7, lines 31 – 59, where teaches satellite communication system has a plurality of satellites in an inclination, elliptical, geosynchronous orbit, for providing a particular portion of time of the continuous broadcasting service to the terrestrial receiver by field of view handoff). Torkington teaches that the plurality of satellites augments at least one legacy satellite (old or used satellite) in a geostationary orbit (column 9, lines 37 – column 10, lines 21 and Fig. 5, 9,

where teaches each satellite, multiple satellites are lunched into a single holding orbit, backbone satellite in geostationary orbit). Torkington does not exactly explain the limitation “geosynchronous orbits provides near continuous broadcast service to a terrestrial receiver”. However, Rothblatt supportly teaches the limitation “geosynchronous orbits provides near continuous broadcast service to a terrestrial receiver” (column 3, lines 37 – column 5, lines 31 and Fig. 1, where teaches three geosynchronous satellites provide transmitting the broadcast information to the terrestrial receiver twenty-four hours a day). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington system as taught by Rothblatt, provide the motivation to enhance the continuous satellite broadcast service to the terrestrial receiver in satellite communication system.

Regarding **claims 2, 15, and 17**, Torkington and Rothblatt teach all the limitation, as discussed in claim 1. Furthermore, Torkington teaches that a first satellite (Fig. 5) actively servicing the terrestrial receiver, and a second satellite (100 in Fig. 1), wherein an apparent position of the second satellite relative to the terrestrial receiver is substantially proximate the apparent position of the first satellite relative to the terrestrial receiver (column 6, lines 11 – 65 and Fig. 5) when the first satellite completes providing its portion of the broadcast service (column 5, lines 36 – column 6, lines 65 and Fig. 3, 5, where teaches a satellite services to the terrestrial receiver, and second satellite is located apparent position to the terrestrial receiver, and first satellite handoffs to second satellite as completes providing its portion of the broadcast service).

Regarding **claims 3, 18, and 27**, Torkington teaches that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially closed loop (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches tracing of the apparent position of each of the satellite to the terrestrial receiver as the satellite is providing continuous broadcast service is closed loop).

Regarding **claims 4, 19, and 28**, Torkington and Rothblatt teach all the limitation, as discussed in claim 1. Furthermore, Torkington teaches that the terrestrial receiver comprises an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track of the apparent position of each of the satellites).

Regarding **claims 5, 20, and 29**, Torkington and Rothblatt teach all the limitation, as discussed in claim 1. Furthermore, Torkington teaches that the track of the apparent position of each of the satellites substantially corresponds to a sensitivity pattern of an antenna at the terrestrial receiver (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track a sensitivity pattern for the apparent position of each of the satellites).

Regarding **claims 6, 21, and 30**, Torkington teaches that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially teardrop-shaped (column 5, lines 36 – column 6, lines 65,

Art Unit: 2684

Fig. 1, 3, and column 2, lines 29 - 50, where teaches providing its portion of the continuous broadcast service is substantially rings-shaped).

Regarding **claim 9**, Torkington and Rothblatt teach all the limitation, as discussed in claims 1 and 4. Furthermore, Torkington further teaches that an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellite (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track a sensitivity pattern for the apparent position of each of the satellites).

Regarding **claim 25**, Torkington and Rothblatt teach all the limitation, as discussed in claims 1 and 2.

Regarding **claim 26**, Torkington and Rothblatt teach all the limitation, as discussed in claims 1 and 2.

Regarding **claim 45**, Torkington and Rothblatt teach all the limitation, as discussed in claim 1. Furthermore, Torkington further teaches that a receiver station antenna (Fig. 6) that can communicate with said at least one satellite and at least one of said plurality of satellites during an active period without tracking (column 5, lines 36 – column 6, lines 65 and Fig. 1, 6, where teaches remote user terminal has a antenna which communicates a satellite and a second satellite during an active period without tracking, more specifically, a satellite's ground tracking antenna transmits broadcast signal to remote terminal and also communicates with second antenna that is pointed communicating to the satellites without tracking). Torkington teaches that a gateway (Fig. 8) having a tracking antenna to track said plurality of satellites (Fig. 1, 8, and column 8, lines 58 –

Art Unit: 2684

column 9, lines 36, where teaches a switching gateway has tracking antennas to continually tracking to the satellite).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 7, 22, and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Torkington in view of Briskman et al. (US Patent number 6,564,053).

Regarding **claims 7, 22, and 31**, Torkington discloses all the limitation, as discussed in claim 1. However, Torkington does not specifically disclose the limitation “an orbit inclination **approximately** equal to 50 degrees and eccentricity **approximately** equal to 0.13”. However, Briskman teaches the limitation “an orbit inclination approximately equal to 50 degrees and eccentricity approximately equal to 0.13” (column 2, lines 5 – 19, where teaches the inclination of the satellites is generally chosen between about 40 degrees and about 80 degrees and eccentricity range is about 0.15 to about 0.30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington system as taught by Briskman. The motivation does so would be to improve the satellite pattern for continuous

Art Unit: 2684

broadcasting service and optimizing coverage of particular service area in direct broadcast satellite system.

6. **Claims 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Torkington in view of Briskman and in further view of Ogawa et al. (US 6,172,650).

Regarding **claims 10 and 11**, Torkington and Briskman do not specifically disclose the limitation “the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point”. However, Ogawa discloses the limitation “the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point” (Fig. 7, 8 and column 7, lines 16 – column 8, lines 51, where teaches the satellite receiver antenna comprises a main reflector may be formed by offset parabola which has a focus point at a location of the feed probe and rotational axis indicated by the dotted line in the figure, high peak gain can be obtained by main reflector of the rotational parabolic cylinder, this leads to improved sensitivity). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington and Briskman systems as taught by Ogawa. Doing so would enhance the broadcast signal adaptability in satellite communication system.

Allowable Subject Matter

7. Claims 12-14 and 50-52 are allowed.

Claims 12-14 and 50-52 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 12-14 and 50-52.

As recited in independent claims 12 and 50, none of the prior art of record teaches or fairly suggests that the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point, and wherein the head is disposed offset from the focal line and the reflector is approximately 18 centimeters in diameter, and the head is disposed approximately 7 inches offset from the focal point and approximately 4 inches offset from the focal line, and a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit and an active one of said augmenting constellation of satellites and track of an apparent position of each satellite of the augmenting constellation of satellite relative to the antenna when the satellite is in an active period is substantially closed loop, and together with combination of other element as set forth in the claims 12-14 and 50-52. Therefore, claims 12-14 and 50-52 are allowable over the prior art of records.

8. Claims 8, 23, 32, and 46-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2684

The prior art of record fails to show "the satellite orbits are a period approximately equal to 86164 seconds, an altitude at perigee approximately equal to 30305 kilometers, and an altitude at apogee approximately equal to 41268 kilometers, and a track of the apparent position of each active satellite relative to the receiver station antenna is substantially closed loop and an active satellite in nearing the end of the active period, the apparent position of the active satellite substantially overlaps another one of the plurality of satellites that is beginning the active period" as specified in the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Emmons, Jr. et al. (US 6,684,056) discloses System for providing Optimal Satellite Communication via a MEO/LEO Satellite Constellation.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
Or P.O. Box 1450
Alexandria VA 22313

or faxed (571) 273-8300, (for formal communications intended for entry)

Art Unit: 2684


Or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to USPTO Headquarters, Alexandria, VA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Edward Urban**, can be reached on **(571) 272-7899**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L
September 5, 2006

John J Lee


EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600